



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/713,807

11/14/2003

Eric Ameres

1087.261

4480

4617 7590 05/21/2009  
LEVISOHN, BERGER, LLP  
11 BROADWAY, Suite 615  
NEW YORK, NY 10004

EXAMINER

CZEKAJ, DAVID J

ART UNIT

PAPER NUMBER

2621

MAIL DATE

DELIVERY MODE

05/21/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/713,807	<b>Applicant(s)</b> AMERES ET AL.	
	<b>Examiner</b> DAVID CZEKAJ	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 49-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 49-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

On page 4, applicant argues that Matsumura fails to disclose creating an optimal transmission order comprising a custom scan order. While the applicant's points are understood, the examiner respectfully disagrees. See for example Matsumura column 4, lines 44-60. There Matsumura discloses the use of a DCT on the input data. The examiner notes that it is well known in the art that DCT's can perform many different types of scanning orders. Hence, the scanning order used by Matsumura is a custom scanning order as decided by the user/hardware manufacturer. Furthermore, the examiner notes that custom does not indicate a variable or the option to choose between different scanning orders. Therefore the rejection has been maintained.

On page 4, applicant argues that Matsumura fails to disclose partitioning a compressed output bitstream. While the applicant's points are understood, the examiner respectfully disagrees. See for example Matsumura column 4, lines 37-43. There Matsumura discloses partitioning a stream into a plurality of partitions such as slices or blocks and coding each partition separately or independently. The examiner notes that the input stream into Matsumura's system has been previously output by a processing device. Hence, by partitioning the stream, Matsumura is partitioning the output stream for processing by Matsumura's system. Therefore the rejection has been maintained.

On pages 5-6, applicant argues that Mukerjee fails to disclose predicting fractional pixel motion by selecting an interpolation method comprising bilinear and

Art Unit: 2621

bicubic filtering. While the applicant's points are understood, the examiner respectfully disagrees. See for example Mukerjee column 13, lines 25-49. There Mukerjee discloses predicting fractional pixel motion by using bilinear filters and/or bicubic filters. Therefore the rejection has been maintained.

On page 6, applicant argues that Mukerjee fails to disclose using a frame prior to the frame immediately before the current frame. While the applicant's points are understood, the examiner respectfully disagrees. See for example Mukerjee column 9, lines 24-30. There Mukerjee discloses using a previously located frame as reference to the current frame. Furthermore, the examiner notes that this claim limitation does not need to be rejected since the claim has been amended in the alternative from. For example, the examiner is interpreting the claim to read predicting fractional pixel motion or enhancing error recovery. Therefore the rejection has been maintained.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 49, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (6125144), (hereinafter referred to as "Matsumura") in view of Mukerjee et al. (7116831), (hereinafter referred to as "Mukerjee").

Regarding claim 1, Matsumura discloses an apparatus that relates to a picture coding method (Matsumura: column 1, lines 6-10). This apparatus

comprises "transforming the pixels of each block into coefficients, each of the coefficients having a position, and creating an optimal transmission order comprising a custom scan order" (Matsumura: figure 5, wherein the DCT performs the transformation) and "optimizing the speed of processing compressed video data by partitioning the bitstream and coding each partition independently" (Matsumura: column 4, lines 37-43). However, this apparatus lacks the fractional motion and error recovery as claimed. Mukerjee teaches that prior art encoders and decoders fail to account for the accumulation of rounding error which causes artifacts in video sequences (Mukerjee: column 4, lines 54-60). To help alleviate this problem, Mukerjee discloses "predicting fractional pixel motion by selecting an interpolation method for each pixel depending upon one metric related to the block, said interpolation methods comprising bilinear and bicubic filtering" (Mukerjee: column 6, lines 41-47; column 13, lines 25-49, wherein the fractional pixel motion is the sub pixel motion), or "enhancing error recovery for a frame using a frame prior to the frame immediately before the frame as the only reference frame" (Mukerjee: column 9, lines 24-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Matsumura and add the processing taught by Mukerjee in order to obtain an apparatus that helps reduce artifacts in video sequences.

Regarding claim 49, Mukerjee discloses "finding a block that best matches the block to be encoded, determining the best fractional pixel step, calculating a

Art Unit: 2621

motion vector, using an algorithm to determine when to encode no motion vector, the vector by reference to a nearby vector, the vector directly, the vector as a difference vector, and transmitting the vector” (Mukerjee: figures 4-8; column 9, lines 15-40; column 11, line 54 – column 12, line 15).

Regarding claim 51, although not disclosed, it would have been obvious to calculate a compound motion vector through an average (Official Notice). Doing so would have been obvious in order to capture a better representation of the sample by performing an averaging operation.

2. Claims 50 and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (6125144), (hereinafter referred to as “Matsumura”) in view of Mukerjee et al. (7116831), (hereinafter referred to as “Mukerjee”) in further view of Wu et al. (6418166), (hereinafter referred to as “Wu”).

Regarding claim 50, note the examiners rejection for claim 1, and in addition, claim 50 differs from claim 1 in that claim 50 further requires differential encoding the block to the left and above. Wu teaches that minimizing the number of bits needed to encode the error signal does not necessarily result in the most efficient coding of the overall block (Wu: column 3, lines 25-32). To help alleviate this problem, Wu discloses “differentially encoding a vector from the vector of the block to the left if that block has a motion vector or the vector of the block above if that block has one but the vector does not and otherwise encodes the vector directly” (Wu: column 8, lines 43-59). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention

was made to implement the motion vector processing taught by Wu in order to more effectively encode video data.

Regarding claim 52, Wu discloses “coding the row as differential from the vector of the block to the left and the column from the block above” (Wu: column 8, lines 43-59).

Regarding claim 53, Wu discloses “coding the vector between the above or left block if the vectors of the blocks to the left and above are similar” (Wu: figure 7; column 8, lines 43-59).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2621

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID CZEKAJ whose telephone number is (571)272-7327. The examiner can normally be reached on Mon-Thurs and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dave Czekaj/  
Primary Examiner, Art Unit 2621